L2TP

PPPoE

 PPP_{0E}

PPPoE

(DETALINK LAYER)

ETHERNET (OPTICAL FIBER)

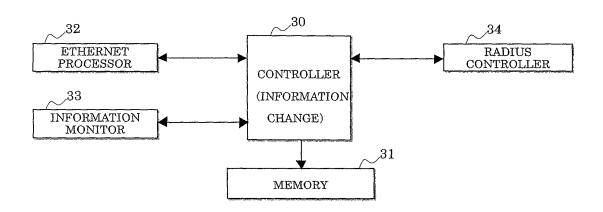
ETHERNET (UTP)

П

ONLINE GAME SERVER FRAME 20 EDGE DEVICE 27 any 日 INET EDGE DEVICE CARRIER NETWORK FRAME CN PPP IP EDGE DEVICE RADIUS SERVER FIG.1 FRAME 25 PPP П COMMUNICATION DEVICE FRAME PORT P2 14 PPP 13 PORT P1 24 П ONO FRAME USER TERMINAL PPP 23 Π USER TERMINAL 12 (NETWORK LAYER) (USER A) (USER B)

INTERNET

FIG.2



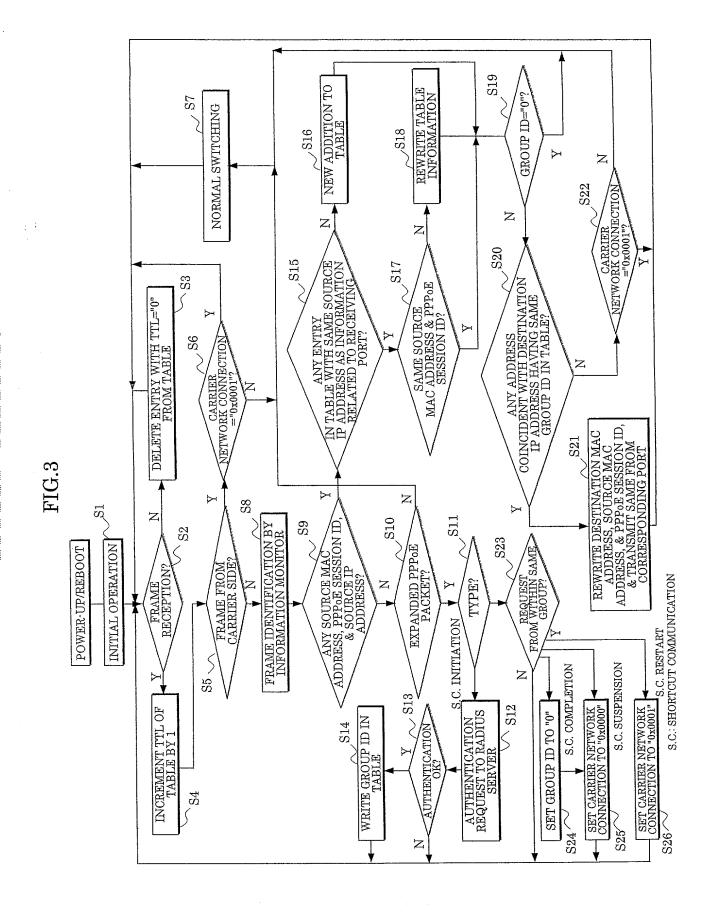


FIG.4

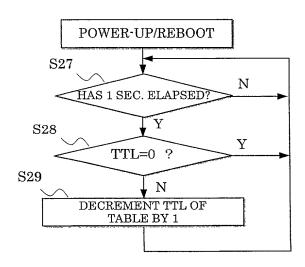


FIG.5

 \sim TBL

PORT	MAC ADDRESS	PPPoE SESSION ID	IP ADDRESS	GROUP ID	CARRIER NETWORK CONNECTION AVAILABILITY	TTL
P1	00:00:0E:11:22:xx	0x0001	112.116.5.xxx	0xFD376458	0x0001	0x0020
P2	00:00:0E:22:33:xx	0x0003	168.34.22.xxx	0xFD376458	0x0001	0x003E

FIG.6

	23(24) FRAME				31			
	DESTINATION MAC ADDRESS							
	DESTINATION MAC ADDRESS (CONTINUED) SOURCE MAC ADDRESS							
	SOURCE MAC ADDRE	ESS (CONTI	NUED)					
	UPPER LAYER IDENTIFIER	Ver	TYPE	CODE				
PPPoE {	(DISCOVERY PACKET OF PPPoE)				} PPPo	E		
	PPP₀E SESSION ID	DATA LENGTH]				
	TAG TYPE OF SHORTCUT COMMUNICATION INITIATION	F	TAG DATA L	ENGTH				
	TAG TYPE OF GROUP ID	r	TAG DATA L	ENGTH	EXPANE			
EXPANDED/ PPPoE	GROUP ID (VARIABLE LENGTH)					ED		
	TAG TYPE OF PASSWORD	,	TAG DATA L	ENGTH				
	PASSWORD (VARI	ABLE LENG	TH)					

FIG.7

	0	23(24) FRAME				31		
	DESTINATION MAC ADDRESS							
DATALINK LAYER	DESTINATION MAC AD	sc	URCE MAC	ADDRESS	1 7.	DATALINK LAYER		
	SOURCE MAC ADDRESS (CONTINUED)							
	UPPER LAYER	Ver	TYPE	TOS				
	(IP PAC	CKET)						
	DATA LE	NGTH		IDENTII				
NETWORK LAYER	FLAG, FRAGM	TTL UPPER LAYER IDENTIFIER (UDP)		1 7	NETWORK LAYER			
	HEADER CI	HECKSUM	S	OURCE IP A	ADDRESS			
*	SOURCE IP ADDR	IP ADE	RESS OF RA	ADIUS SERVER				
	IP ADDRESS OF RADIUS SERVER (CONTINUED)		SOURCE PORT NUMBER			11.	TRANSPORT LAYER	
Ĺ	DESTINATION PORT NUMBER (RADIUS)		DATA LENGTH				LAIER	
TRANSPORT LAYER	UDP CHE	CC	DDE	IDENTIFIER				
			(ACCESS REQUEST)					
Ì	DATA LENGTH		AUTHENTICATION REQUEST					
	TYPE	DATA LENGTH	'A LENGTH GROUP I		ROUP ID (VARIABLE LENGTH)			
	(USER NAME) TYPE DATA LENGTH		-					
			PASSWORD (VARIABLE LENGTH)				UPPER	
UPPER	(USER PASSWORD)						LAYER	
LAYER	TYPE DATA LENGTH (NAS-IP ADDRESS)		IP ADDRESS OF					
			COMMUNICATION DEVICE					
	IP ADDRESS OF COMMUNICATION DEVICE		T	YPE	DATA LENGTE	I		
	(CONT)	NUED)	(NAS PORT)					
	PORT OF COMMUNICATION DEVICE]/		

FIG.8

0	23(24) FRAME			31	-
	DESTINATION M	AC ADDRES			
	destination macaddress (continued).				
	SOURCE MAC ADDRE	ss (conti	NUED)		
	UPPER LAYER IDENTIFIER	Ver	TYPE	CODE	
PPPoE {	(PPP FRAME OF PPPoE)				> PPPoE
l	PPPOE SESSION 1D	LENGTH (DATA LENGTH)			J
(UPPER LAYER IDENTIFIER (1P)	Ver	TYPE	TOS	
	DATA LENGTH		IDENTI		EXPANDED
EXPANDED/ PPPoE	FLAG, FRAGMENT OFFSET	T	TL	UPPER LAYER IDENTIFIER	PPPoE
	HEADER CHECKSUM	SOURCE IP ADDRESS			
	SOURCE IP ADDRESS (CONTINUED)	DESTINATION IP ADDRESS			
	DESTINATION IP ADDRESS (CONTINUED)	(UPPER LAYER PROTOCOL)			
					;

FIG.9

	0 23(24) FRAM	3			31	
	DESTINATION MAC ADDRESS					
	DESTINATION MAC ADDRESS (CONTINUED) SOURCE MAC ADDRESS					
	SOURCE MAC ADDRESS (CONTINUED)					
	UPPER LAYER IDENTIFIER	Ver	TYPE	CODE		
PPPoE{	(DISCOVERY PACKET OF PPPoE)				PPPoE	
PPPoE SESSION ID DATA LENG						
EXPANDED { PPPoE	TAG TYPE OF SHORTCUT COMMUNICATION COMPLETION TAG DATA LENGTH		EXPANDED PPPOE			

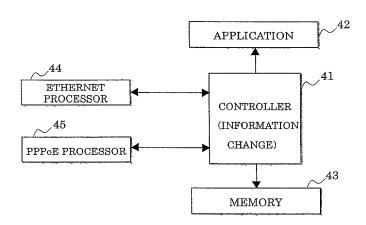
FIG.10

(23(24) FRAM	E			31		
	DESTINATION M						
!	DESTINATION MAC ADDRESS (CONTINUED)	S					
	SOURCE MAC ADDRE	SOURCE MAC ADDRESS (CONTINUED)					
	UPPER LAYER IDENTIFIER	Ver	TYPE	CODE			
PPPoE {	(DISCOVERY PACKET OF PPPoE)				PPPoE		
	PPPoE SESSION ID DATA LENGTH				EXPANDED		
EXPANDED PPPoE	TAG TYPE OF SHORTCUT COMMUNICACTION SUSPENSION	TAG TYPE OF SHORTCUT COMMUNICACTION SUSPENSION TAG DATA LENGTH					

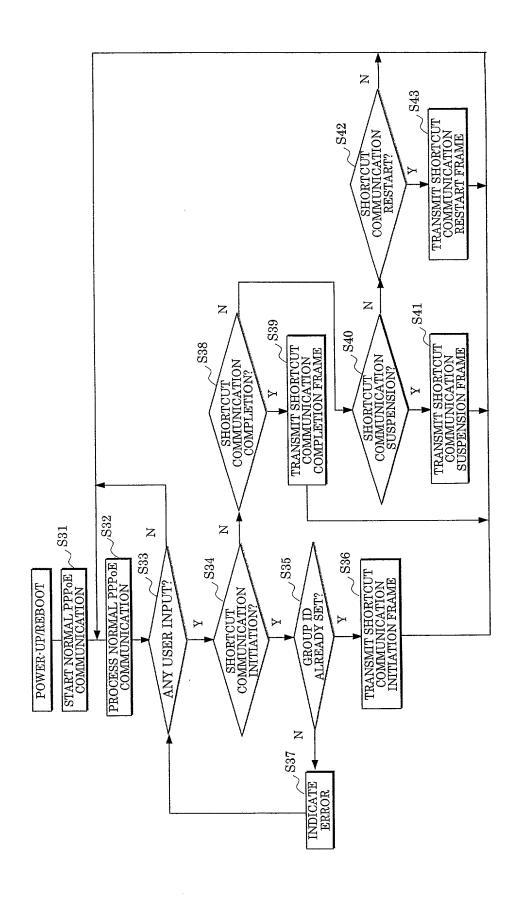
FIG.11

	0 23(24) FRAN	1E			31		
	DESTINATION MAC ADDRESS						
	DESTINATION MAC ADDRESS (CONTINUED)						
	SOURCE MAC ADDRESS (CONTINUED)						
	UPPER LAYER IDENTIFIER	Ver	TYPE	CODE			
PPPoE {	(DISCOVERY PACKET OF PPPoE)				PPPoE		
	PPPoE SESSION ID	DATA LENGTH TAG DATA LENGTH					
EXPANDED { PPPoE	TAG TYPE OF SHORTCUT COMMUNICATION RESTART				EXPANDED PPPoE		

FIG.12







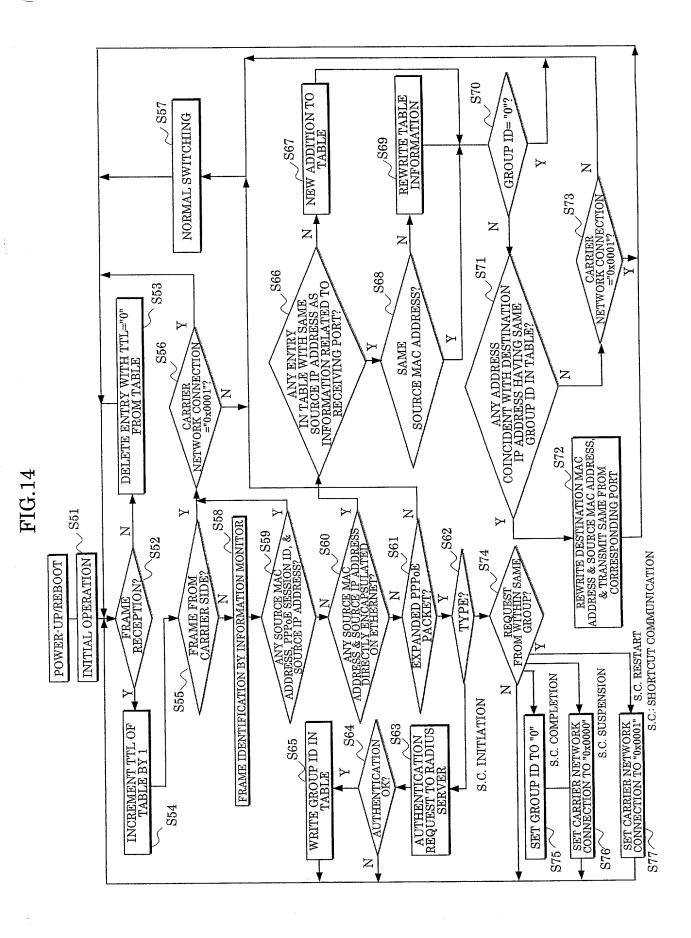


FIG.15

	\sim 23(24) FRAI	Æ			31
	DESTINATION M	AC ADDRES	S		40.25
	ADDRESS				
	SOURCE MACADDRE	ss (conti	NUED)		4 164 1948 1-4 c
	UPPER LAYER IDENTIFIER	Ver	TYPE	TOS	
	(IP PACKET)				_
ENCAPSU-	DATA LENGTH	IDENTIFIER			ENCAPSU-
LATION BY ETHERNET	FLAG, FRAGMENT OFFSET	TTL		UPPER LAYER IDENTIFIER	LATION BY ETHERNET
BILIBRIEL	HEADER CHECKSUM	SOURCE IP ADDRESS			
	SOURCE IP ADDRESS (CONTINUED)	DESTINATION IP ADDRESS])
-	DESTINATION IP ADDRESS (CONTINUED)	(UPPER LAYER PROTOCOL)			

